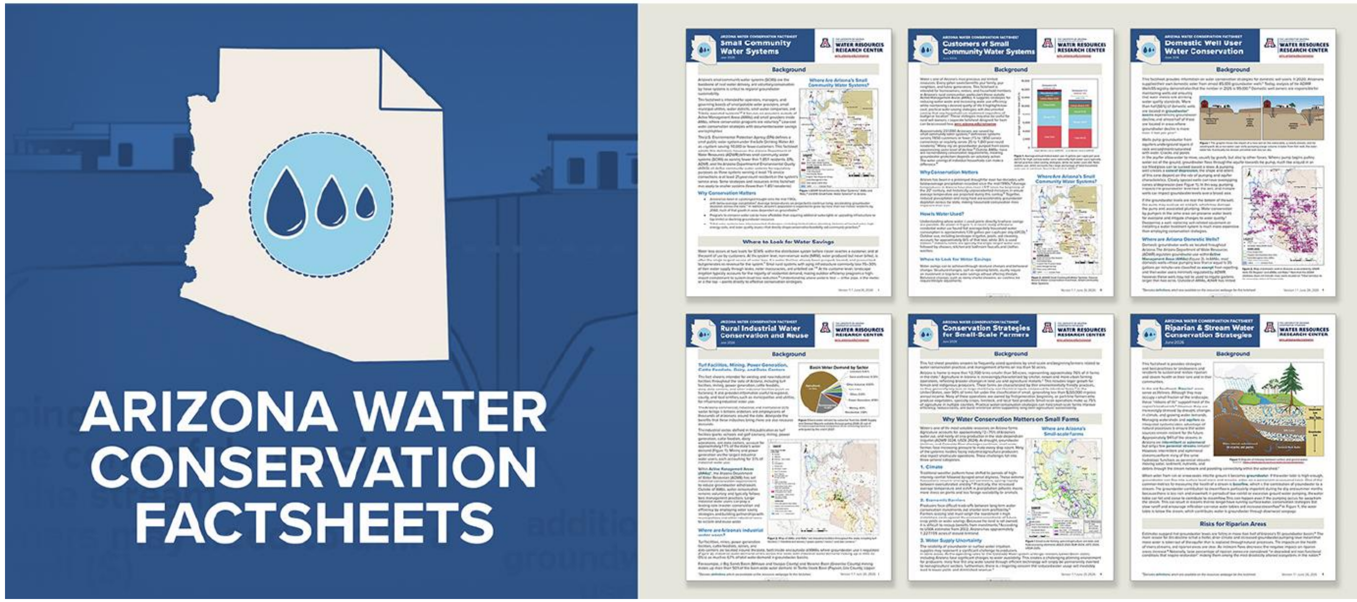

Arizona Water Conservation Factsheets

A Project Funded by the Water Infrastructure Finance Authority of AZ

WRRC Water Webinar

Anne Gondor, Sharon B. Megdal, and Jamie McEvoy

Water Resources Research Center

June 30, 2026

THE UNIVERSITY OF ARIZONA
COOPERATIVE EXTENSION
WATER RESOURCES
RESEARCH CENTER

smegdal@arizona.edu

WRRC HOME PAGE

wrrc.arizona.edu

WRRC bridges academia and the real-world of water management

- The University of Arizona Water Resources Research Center (WRRC) tackles key water policy and management issues, empowers informed decision-making, and enriches understanding through engagement, education, and applied research.
- Water Webinars, annual conference, publications, informational resources, etc.
- Partnerships, engagement, and respectful dialogues are essential to our work.

WRRC HOME PAGE

WRRC WEEKLY WAVE SUBSCRIBE

Outline

1. Introduction to the Arizona Water Conservation Factsheet project (SBM)
2. Approach to the developing the factsheets (AG)
3. Overview of factsheet content and accessing the factsheets and related materials (AG)
4. Wrap-up and request for assistance in getting the word out (SBM)
5. Acknowledgements (SBM)
6. Questions and Discussion (JM moderator)

1. Introduction to the Arizona Water Conservation Factsheet Project

WATER INFRASTRUCTURE
FINANCE AUTHORITY OF ARIZONA

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https://azwifa.gov/programs/funding-type/wcgf

Water Conservation Grant Fund

(Feb. 2025) FUNDING AVAILABLE

The Arizona Office of the Governor has authorized funds to WIFA to facilitate a new round of WCGF grants. The funding available for this grant program is **$14.1 million.** All projects must be completed by June 30, 2026 (funds completely drawn).

- **Conservation projects** may receive up to **$250,000**
- **Conservation programs** may receive up to **$3 Million**
- There is a **25% match** requirement for each conservation program or project. Monies from any non-WIFA source may satisfy the match requirement.

A wide range of projects and programs may be eligible for WCGF funding. Some examples include:

- Water use education and conservation research
- Community incentives for rainwater harvesting, gray water systems, and turf removal
- Widespread installation of drought-resistant landscaping and turf removal incentives
- Infrastructure efficiency upgrades
- Projects that promote groundwater recharge and imported aquifer health
- Construction of groundwater storage facilities
- Community education initiatives about wise water use
- Programs or projects to reduce structural water overuse issues

Helpful Links

Reimbursement Guide

Reimbursement How-To Video

2025 Funding Press Release

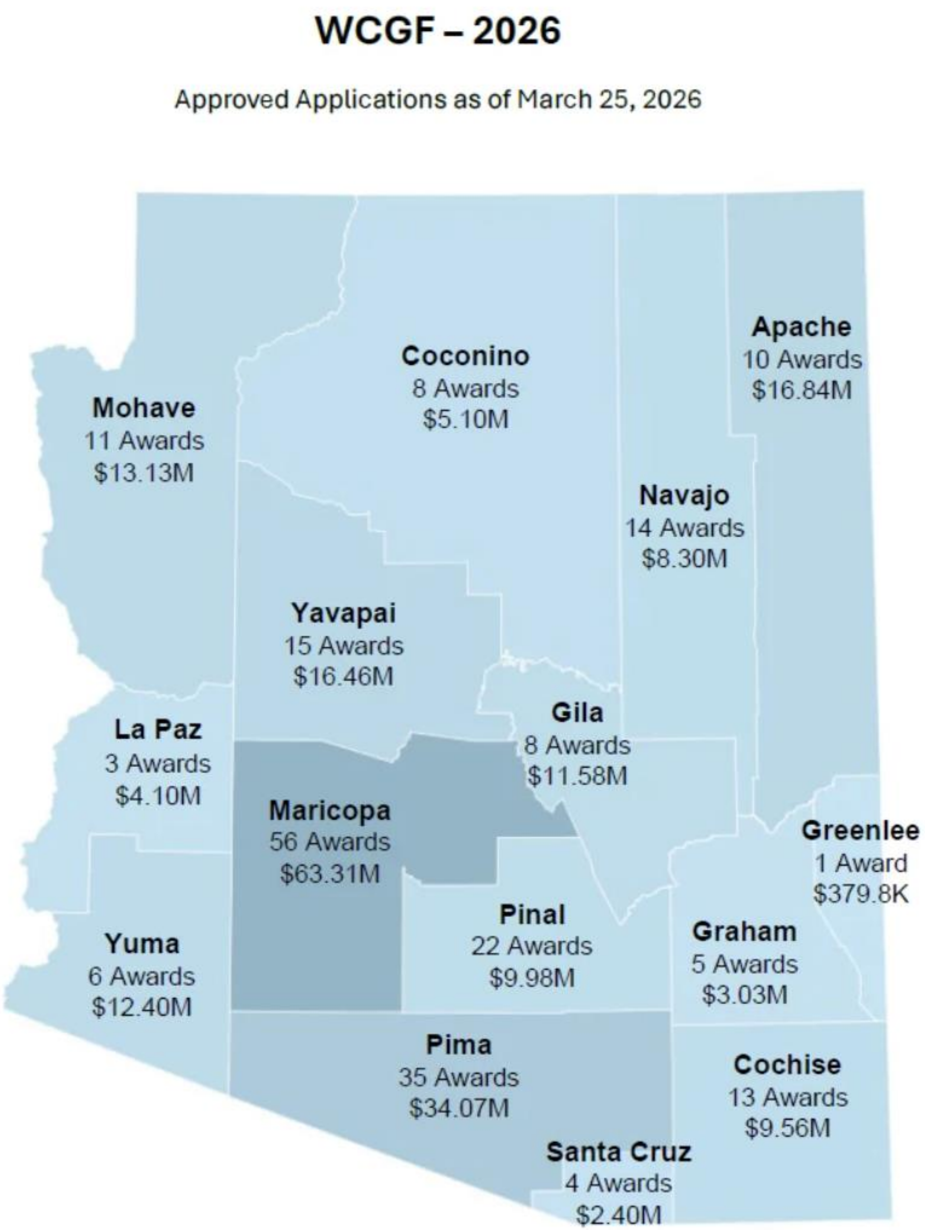
2025 WCGF Update Webinar

Post Award Webinar | Slides

WCGF Board Policy

WCGF Fact Sheet | 2025 FAQs

ARPA Terms and conditions



Awards and Highlights

Water Conservation Grant Fund Highlights

- **255 Applications** with approximately **$211 million** in funding awarded
- **Advanced Meters/System Upgrades:** 80 projects, $65,516,342
- **Agriculture System Upgrades:** 26 projects, $37,918,470
- **Education/Research/Studies:** 14 projects, $7,019,262
- **Efficient Fixtures:** 24 projects, $12,670,093
- **Recharge/Reuse:** 20 projects, $32,283,198
- **Turf Removal:** 43 projects, $52,530,649
- **Vegetation Management:** 2 projects, $435,541

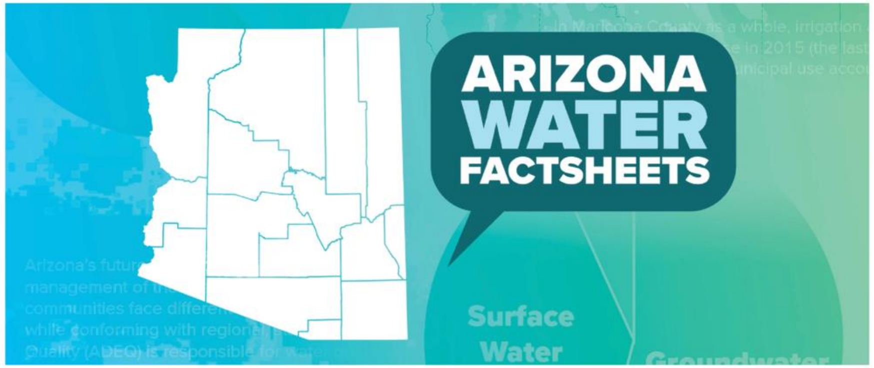
All WCGF Applications received | Approved WCGF Applications

https://azwifa.gov/programs/funding-type/wcgf

Transfer WRRC experience developing county water factsheets to conservation education factsheets

Arizona Water Factsheets

Get to Know Water in Your County



The WRRC is pleased to present the *Arizona Water Factsheet* series

These county-level factsheets are designed to answer common questions about water resources, tailored to every county in Arizona so as to foster understanding of the local nature of Arizona water resource challenges and solutions. Packaging concise water information for a general audience, these resources are nested within the broader Arizona context and address basic water supply and demand, regionally relevant challenges, and sustainability issues for the future. The WRRC draws upon a wide range of existing water-related data, guided by the expertise of a local Technical Advisory Committee (TAC), including, but not limited to, County Cooperative Extension staff. Central to this work is acknowledging the distinct water resources situations, priorities, and values of each county, as defined by local stakeholders. Factsheets for each of Arizona's 15 counties are in development. Keep an eye on this page for new publications in the series.

Support for the Arizona Water Factsheet Series was provided in part by the Technology Research Initiative Fund/Water, Environmental and Energy Solutions Initiative administered by the University of Arizona Office for Research, Innovation and Impact, funded under Proposition 301, the Arizona Sales Tax for Education Act, in 2000.

Click on a county to access factsheet

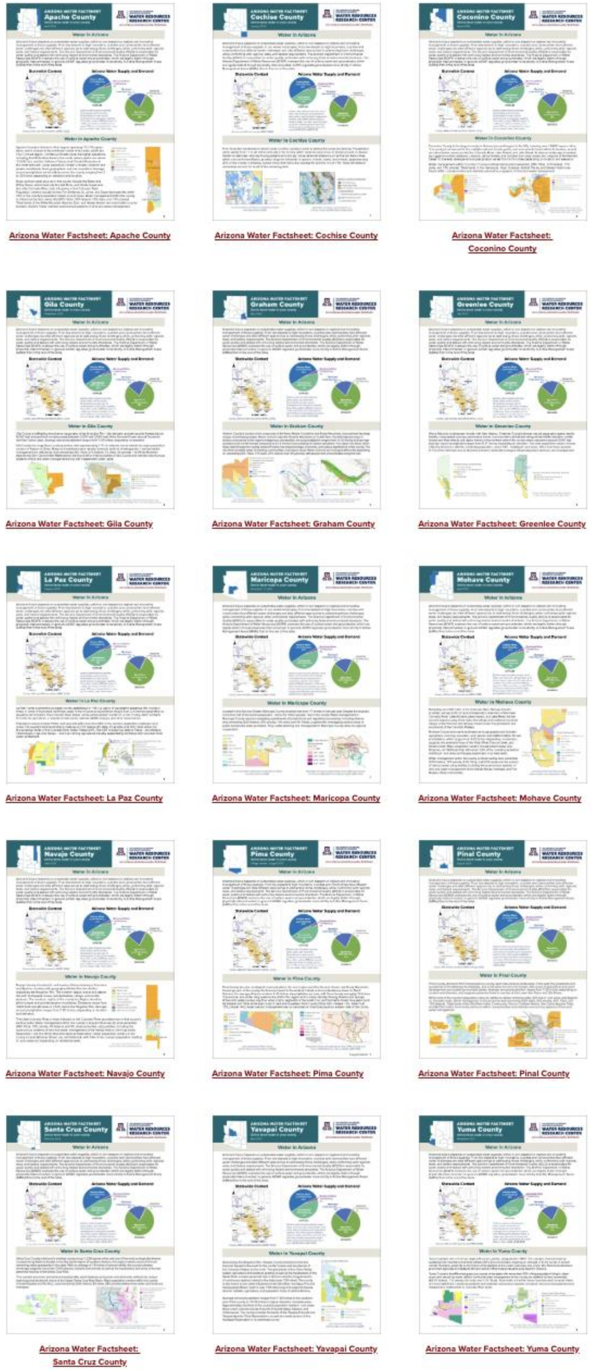
ARIZONA WATER FACTSHEETS

COUNTY FACTSHEET DEVELOPMENT OVERVIEW (PDF)

If you have questions about the factsheets, get in touch with us!

Proposal was submitted in June 2023.
The grant awarded in late September 2025, with a June 30, 2026 completion date.
This webinar marks the official launch of the Arizona Water Conservation Factsheets.

WRRC AZ WATER FACTSHEETS



https://wrrc.arizona.edu/resources/arizona-water-factsheets

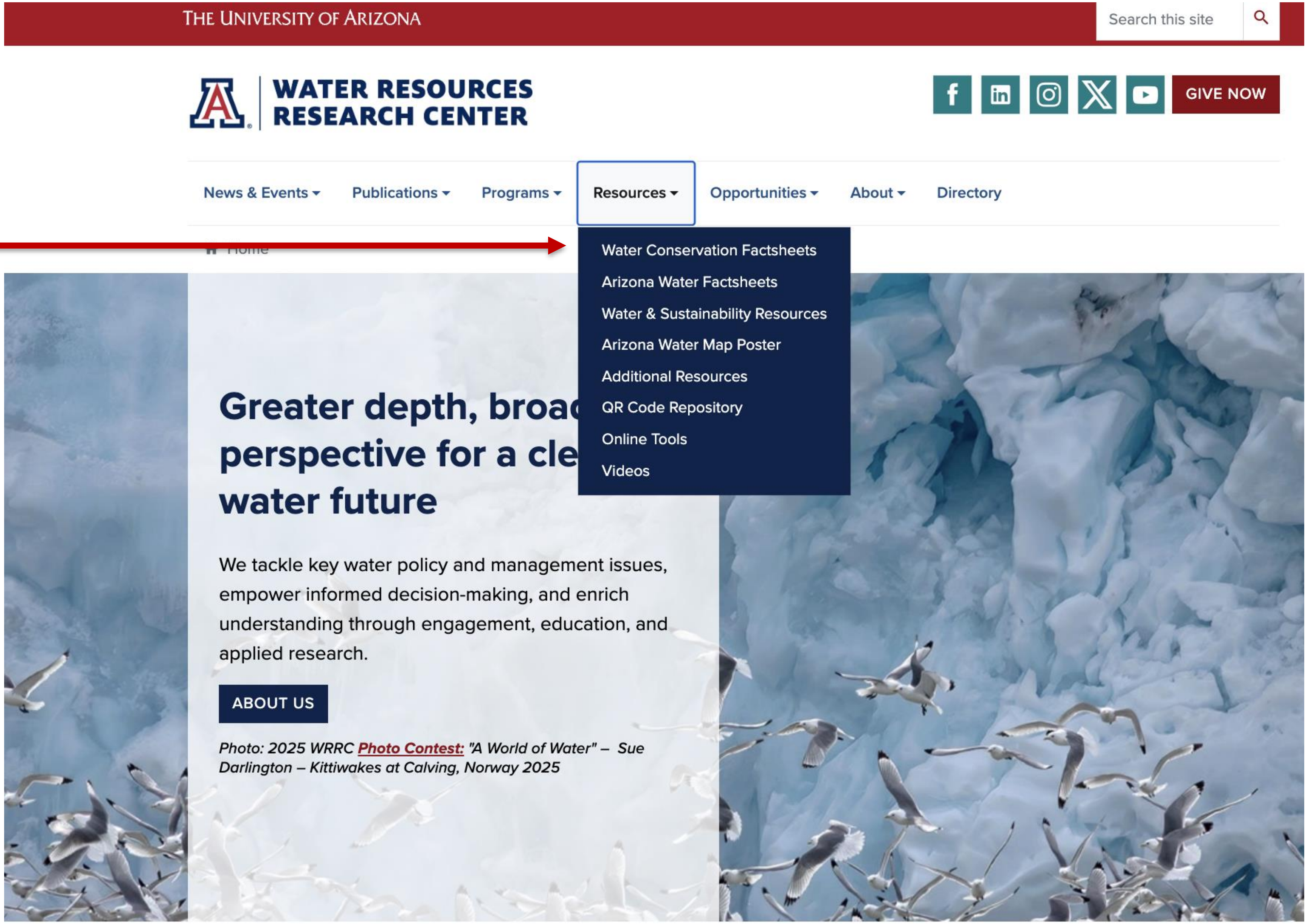
Six info-packed water conservation factsheets

- Primary focus is for those outside of the Active Management Areas, where conservation programs are required and those who may not have resources available for implementing conservation programs, BUT much of the information is relevant to individuals and other water users regardless of location or size.
- The Six Factsheets:
  - Small Community Water Systems
  - Customers of Small Community Water Systems
  - Domestic Well Users
  - Small-scale Farming
  - Rural Industrial Water Conservation and Reuse
  - Riparian and Stream Conservation

Each factsheet includes:
- Background and context for water conservation
- Strategies for water conservation
- Final section on getting started and link to resources and notes

Where to find the Arizona Water Conservation Factsheets

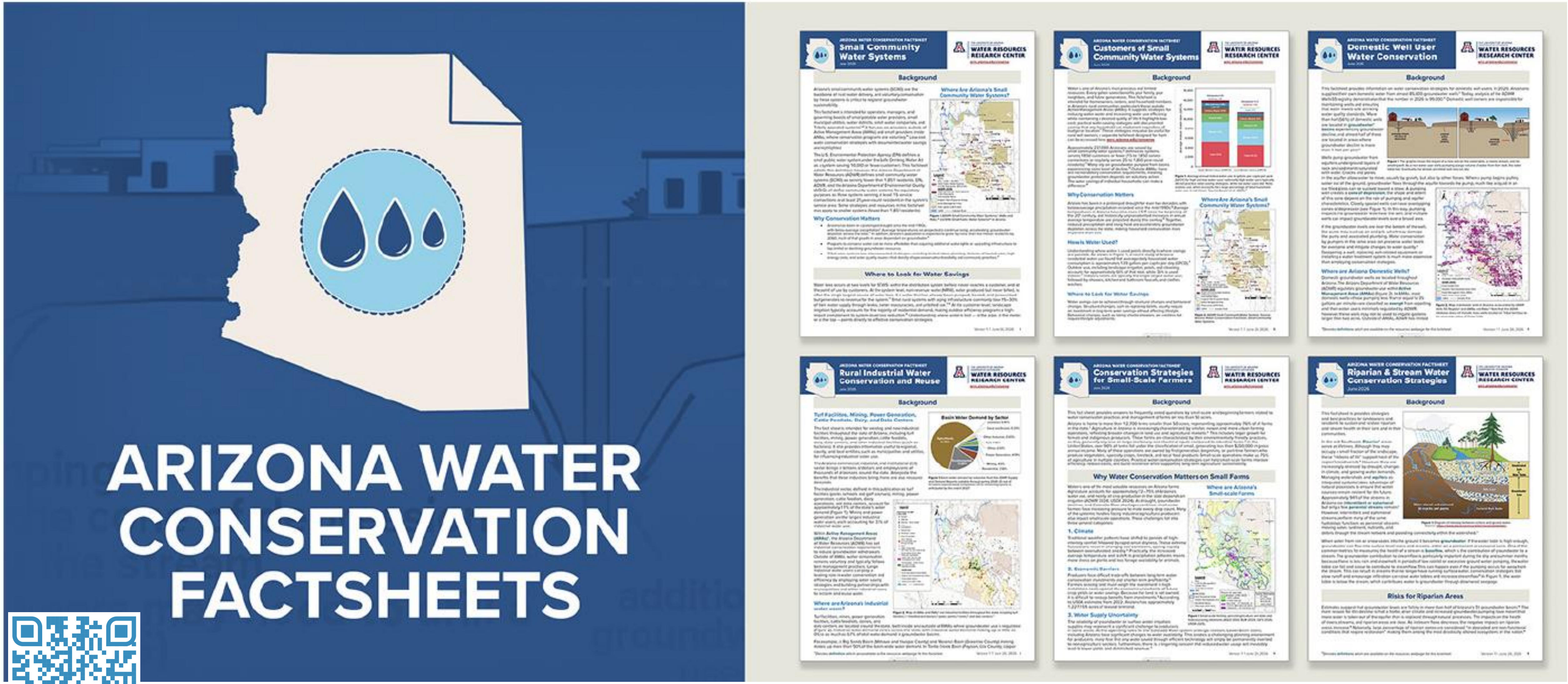
https://wrrc.arizona.edu/conserve



2. Approach to developing the factsheets

- After the grant was awarded, the WRRC team determined that the focus of each should be on a different type of water use and/or user rather than follow the geographically based focus of the county-based water factsheets.
- Brought graduate students on board in November to assist with the research and factsheet content
- Factsheet length to be four pages
- Include an informative map in each
- Invite reviews of each by knowledge individuals
- Revise based on feedback from reviewers
- Outreach meetings held in June
- Finalization and posting of factsheets and supporting materials
- The compressed time frame allowed for limited review times and outreach opportunity prior to the June 30, 2026 completion date.

3. Overview of the Factsheets



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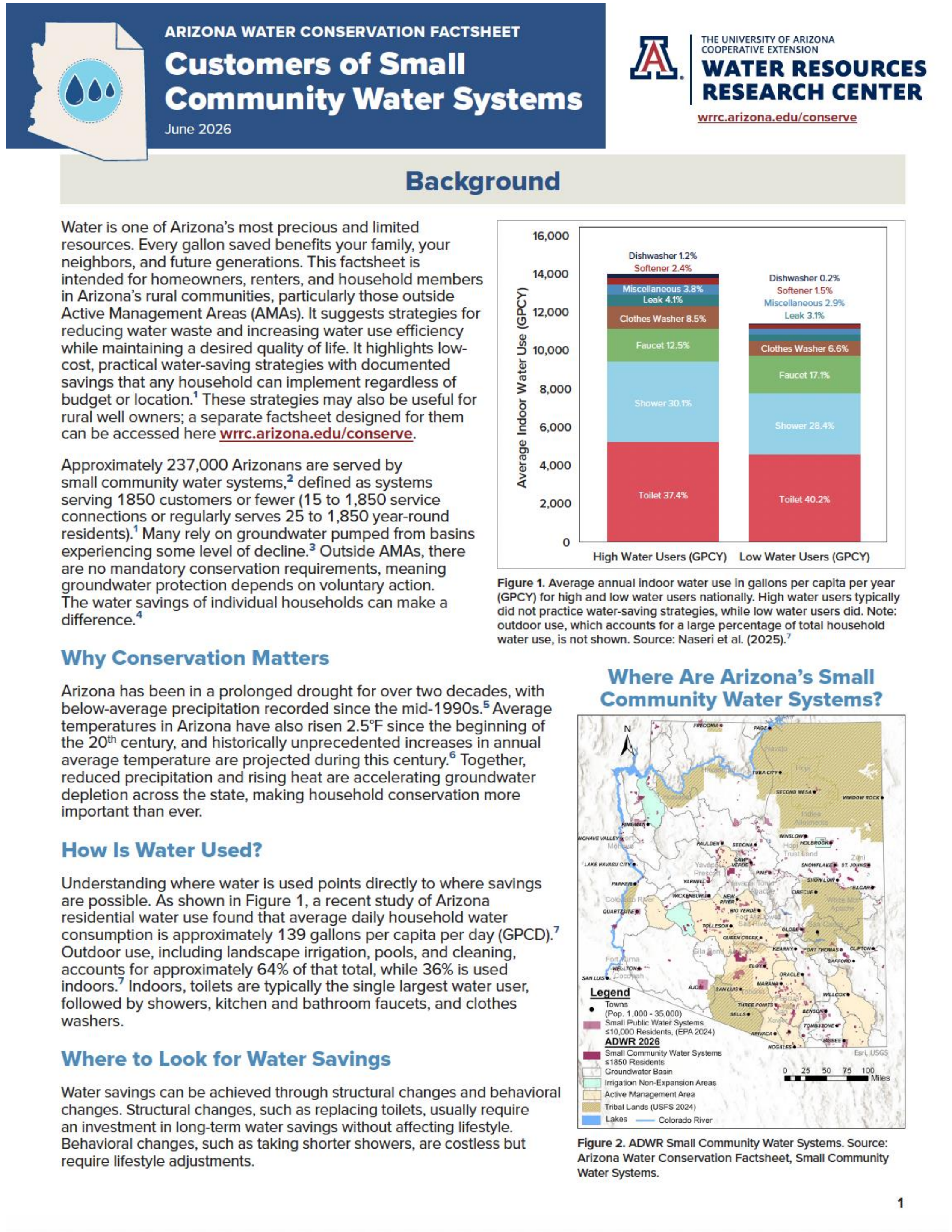
ARIZONA WATER CONSERVATION FACTSHEET

Customers of Small Community Water Systems

June 2026

THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION

WATER RESOURCES RESEARCH CENTER

wrrc.arizona.edu/conserve

Background

Water is one of Arizona's most precious and limited resources. Every gallon saved benefits your family, your neighbors, and future generations. This factsheet is intended for homeowners, renters, and household members in Arizona's rural communities, particularly those outside Active Management Areas (AMAs). It suggests strategies for reducing water waste and increasing water use efficiency while maintaining a desired quality of life. It highlights low-cost, practical water-saving strategies with documented savings that any household can implement regardless of budget or location.[1] These strategies may also be useful for rural well owners; a separate factsheet designed for them can be accessed here wrrc.arizona.edu/conserve.

Approximately 237,000 Arizonans are served by small community water systems,[2] defined as systems serving 1850 customers or fewer (15 to 1,850 service connections or regularly serves 25 to 1,850 year-round residents).[1] Many rely on groundwater pumped from basins experiencing some level of decline.[3] Outside AMAs, there are no mandatory conservation requirements, meaning groundwater protection depends on voluntary action. The water savings of individual households can make a difference.[4]

Figure 1. Average annual indoor water use in gallons per capita per year (GPCY) for high and low water users nationally. High water users typically did not practice water-saving strategies, while low water users did. Note: outdoor use, which accounts for a large percentage of total household water use, is not shown. Source: Naseri et al. (2025).[7]

Why Conservation Matters

Arizona has been in a prolonged drought for over two decades, with below-average precipitation recorded since the mid-1990s.[5] Average temperatures in Arizona have also risen 2.5°F since the beginning of the 20th century, and historically unprecedented increases in annual average temperature are projected during this century.[6] Together, reduced precipitation and rising heat are accelerating groundwater depletion across the state, making household conservation more important than ever.

How Is Water Used?

Understanding where water is used points directly to where savings are possible. As shown in Figure 1, a recent study of Arizona residential water use found that average daily household water consumption is approximately 139 gallons per capita per day (GPCD).[7] Outdoor use, including landscape irrigation, pools, and cleaning, accounts for approximately 64% of that total, while 36% is used indoors.[7] Indoors, toilets are typically the single largest water user, followed by showers, kitchen and bathroom faucets, and clothes washers.

Where to Look for Water Savings

Water savings can be achieved through structural changes and behavioral changes. Structural changes, such as replacing toilets, usually require an investment in long-term water savings without affecting lifestyle. Behavioral changes, such as taking shorter showers, are costless but require lifestyle adjustments.

Where Are Arizona's Small Community Water Systems?

Figure 2. ADWR Small Community Water Systems. Source: Arizona Water Conservation Factsheet, Small Community Water Systems.

1

Small Community Water Systems

- For **providers outside of Active Management Areas (AMAs)**, groundwater sustainability depends on voluntary conservation
- **Four Water Conservation Strategies**
  1. Leak Detection and Water Loss Audits
  2. Universal Metering
  3. Pressure Management
  4. Education and Conservation Assistance
- Rate structure design is mentioned
- Water efficiency in **Tribal contexts** must consider Tribal sovereignty, water rights settlements, infrastructure access disparities, and community-defined priorities

Access to larger size maps will be provided on the Factsheet's webpage

Where Are Arizona's Small Community Water Systems?

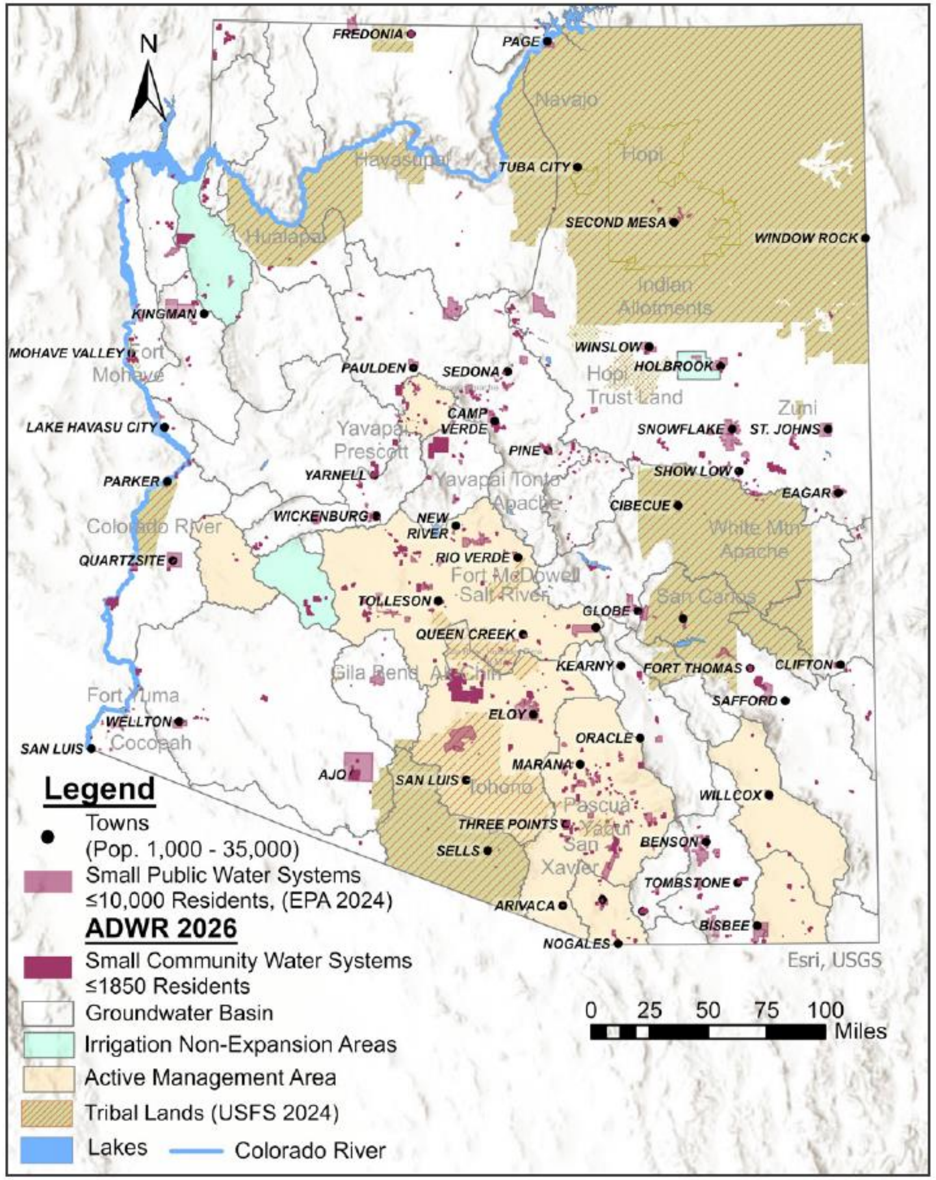

Figure 1. ADWR Small Community Water Systems,[1] AMAs and INAs,[6] and EPA Small Public Water Systems[7] in Arizona.

ARIZONA WATER CONSERVATION FACTSHEET

Customers of Small Community Water Systems

June 2026

THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION
WATER RESOURCES RESEARCH CENTER
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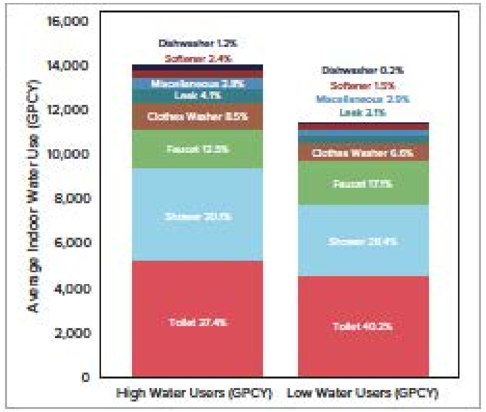

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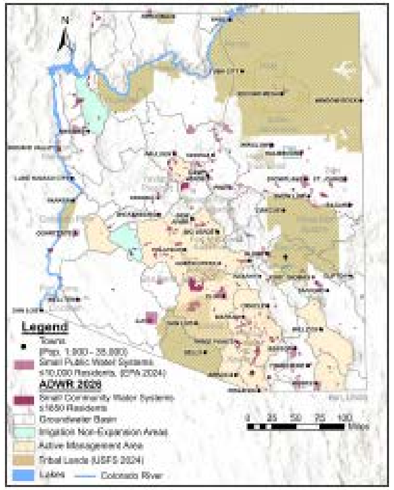


Figure 2. ADWR Small Community Water Systems. Source: Arizona Water Conservation Factsheet, Small Community Water Systems.

1

Indoor Water Efficiency Strategies

STRATEGY 1: Install WaterSense Fixtures and ENERGY STAR® Appliances

Fixing leaks and upgrading fixtures are the most cost-effective investments available and can pay for themselves within a few years through reduced water and energy costs. The EPA's WaterSense program certifies products that use at least 20% less water than standard models without sacrificing performance.[10] WaterSense labeled fixtures are widely available at hardware stores and require no special installation. ENERGY STAR® certified washers and dishwashers use less water and less energy than standard appliances.

Fixture / Appliance	Standard Use gallons (g)	Replacement Use gallons (g)	Estimated Annual Savings gallons/yr
Toilet	3.5–6 g/flush	1.28 g/flush	13,000
Showerhead	2.5 g/min	2.0 g/min	2,700
Faucet Aerator	2.2 g/min	1.5 g/min	700
Washing Machine	40 g/load	15–25 g/load	5,000
Dishwasher	10 g/cycle	3–5 g/cycle	1,300

Finding Rebates in Your Area

Water utilities may offer rebates or other programs. Check your utility provider website to see what conservation programs are available to you. For example, Arizona Water Company, who serves several communities around the state, provides toilet rebates for purchasing and installing high-efficiency toilets.[11] Find out who your utility provider is through your utility bill, and check with them to see about conservation programs available to you. Other rebate opportunities may be available regionally. For example, Cochise County[12] offers a rebate to residents in the county, regardless of water provider. Visit the EPA WaterSense rebate finder at epa.gov/watersense for programs in your area.[10] Finally, the Water-Use-It-Wisely AZ-Water-Wise-Kit program provides free water-saving devices to anyone in the state.

Strategy 2: Leak Detection and Repair

Strategy 3: Home Water Treatment Devices

Outdoor Water Efficiency Strategies

STRATEGY 1: Install Smart Irrigation Controllers

In rural communities, outdoor water use often serves essential needs including livestock watering, gardens, and food production. If you have a landscape or a garden irrigation system, replacing a standard clock-based irrigation timer with an EPA WaterSense labeled smart controller is an impactful and cost-effective outdoor water-saving investment. Smart controllers adjust watering schedules automatically based on real-time weather data, soil moisture, and local evapotranspiration (ET) rates, so plants can get water when they need it.[10]

Controllers can be installed by yourself, or a certified professional. Once installed, check your controller's watering schedule monthly during the growing season to verify that run times and zone coverage match your plants' current needs. Adjust timers for monsoon rainfall periods when supplemental irrigation may not be needed.

- Estimated savings: up to 15,000 gallons per year per household.[13]
- Cost: $80–$300 for a quality Wi-Fi enabled smart controller. Professional installation costs will vary. If you are replacing an existing controller, it is likely no new wiring will be required.[10]
- Check with your water provider for available rebates before purchasing.

STRATEGY 2: Install Drip Irrigation Systems and Switch to Low Water Landscaping

Drip systems deliver water directly to plant roots and significantly reduce evaporation losses.[14] Replacing grass or high-water-use plants with native arid-adapted species dramatically reduces irrigation demand.

What to Plant and Watering Tips:

The best drought-tolerant plants for your property depend on where you live in Arizona. Elevation, rainfall, and soil type vary significantly across the state. Free regionally specific native plant guides for your area (organized by elevation and climate zone) are available from the U of A Cooperative Extension Water Wise program at waterwise.arizona.edu.[14] Look for plants that are:

- Select native plants for your specific region of Arizona, adapted to local rainfall and soil conditions
- Labeled native or drought-tolerant at your local nursery
- Set drip irrigation schedules to water during early morning or evening to reduce evaporation losses.[14]
- Add 2–3 inches of mulch around plants to retain soil moisture and reduce watering frequency by 25–50%.[14]
- Group plants with similar water needs together (hydrozoning) to avoid overwatering drought-tolerant species.[14]

STRATEGY 3: Rainwater Harvesting (Passive and Active)

Arizona law explicitly encourages rainwater harvesting (A.R.S. Section 45-788). Capturing rain that falls on your roof, other impervious surfaces, and soils, and using it outdoors gives you free water.

Passive rainwater harvesting: uses earthworks like berms, basins, and contour swales to slow, spread, and sink rainfall into the soil where your plants can use it. This approach can dramatically reduce the need for irrigation.[14]

- Level berms on contour slow runoff and allow it to percolate into the root zone.
- Basins around trees and shrubs retain water. Adding mulch reduces evaporation.
- Grading your landscape to direct runoff toward planted areas puts water to use and can reduce erosion and/or flooding.

Active rainwater harvesting: involves storing rainwater in rain barrels or cisterns for later use. System costs depend primarily on the size and type of storage used.

- Connecting a simple rain barrel to a downspout to catch roof runoff typically costs $50–$150.[14]
- Cisterns hold more water and are good for households with larger irrigation needs.[14]
- Large-scale systems provide long-term storage for extended dry periods but require significant investment and maintenance by a qualified service.
- Filtration and treatment devices are required for any indoor uses.

Both active and passive basin systems rely on gutters and downspouts to direct water from your roof to the collection point. If your home does not have rain gutters, installing them is a recommended first step. Many hardware stores carry basic gutter kits, and your local U of A Cooperative Extension office can provide guidance on simple installations.[14]

How Much Rain Can You Collect?

Roof Area (sq. ft.) × Rainfall in inches (in) × 0.623 = Gallons Collected[12].

Example: A 1,500 sq. ft. roof x 12 (in) rainfall = 11,000 gallons/year. This can supply landscape irrigation needs for a typical household.

STRATEGY 4: Gray Water Reuse

Gray water is household wastewater from showers, bathtubs, bathroom sinks, and laundry. (Water from toilets, kitchen sinks, or dishwashers is blackwater, which requires treatment.) Arizona allows single-family gray water reuse for landscape irrigation without a permit for systems handling less than 400 gallons per day.[15]

- Gray water is generated daily, rain or shine, making it a reliable source for outdoor irrigation.
- Simple household systems can be installed in an afternoon.[15]
- Gray water may be used for trees and landscape plants, not vegetables, herbs, or edible root crops.[15] Use of soaps low in salts are recommended, high sodium is harmful to plants.

Laundry-to-Landscape (L2L) System is gray water diverted from your washing machine discharge hose directly to plantings. No pumps are required; the machine does all the work.[15] You may need to re-route the washer's discharge hose to connect to an outdoor distribution line. In some homes, this will require additional piping. A licensed plumber or gray water installer can assess your setup. This requires using low salt soaps to prevent killing plants with the gray water.

Shower-to-Landscape System is gray water diverted from a branched-drain that collects shower and bath water and distributes it to irrigation. No pumps or electricity is required. A free design guide is available from the Arizona Department of Environmental Quality (ADEQ) at azdeq.gov/recycled-water-rulemaking.[15] A licensed plumber or gray water installer should be consulted.

- Materials cost: $300–$1,500 installed.[15]
- Estimated savings: 20–50 gallons per household per day or 7,300–18,250 gallons per year.[15]

TRIBAL COMMUNITIES: Water Efficiency with Culture in Mind

Water customers of Tribal water utilities face many of the same water use decisions as other rural residents; other decisions are unique to their Tribal communities. Differences are rooted in cultural values and traditional practices. Tribal communities have long practiced responsible water stewardship; however, the water efficiency strategies in this factsheet may prove useful. Resource constraints have prevented many Tribes from extending water service to all members living on Tribal land. For example, approximately 30–40% of Navajo Nation residents lack running water at home, and among households that haul water, nearly three quarters are using less than the minimum amount of water recommended for health and well-being.[16,17] For these households, the priority is gaining reliable access to water. Tribal households dependent on private wells or hauled water have water supply and quality concerns not faced by utility customers. The factsheet for domestic well users, available at wrrc.arizona.edu/conserve is likely to be more relevant to them.

Note: All community water systems, including those operated by Tribal nations, must meet EPA National Primary Drinking Water Standards.[18]

Getting Started

Adopting water conservation strategies can be financially and personally rewarding. Many resources are available; you do not have to figure this out alone. **Please use the QR code below or visit wrrc.arizona.edu/conserve to find additional resources and references (linked by numbers in the text) used for the creation of this factsheet.**

Additional Definitions, Resources, and References

wrrc.arizona.edu/conserve

Preparation of this Factsheet was funded by the Water Infrastructure Finance Authority of Arizona Water Conservation Grant Fund and by the Technology and Research Initiative Fund (TRIF)/Water, Environment, and Energy Solutions Initiative, administered by the University of Arizona Office of Research and Partnerships.

WATER INFRASTRUCTURE FINANCE AUTHORITY OF ARIZONA

ARIZONA WATER CONSERVATION FACTSHEET

Domestic Well User Water Conservation

June 2026

THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION
WATER RESOURCES RESEARCH CENTER
wrrc.arizona.edu/conserve

Background

This factsheet provides information on water conservation strategies for domestic well users. In 2020, Arizonans supplied their own domestic water from almost 85,000 groundwater wells.[1] Today, analysis of the ADWR Wells55 registry demonstrates that the number in 2026 is 99,000.[2] Domestic well owners are responsible for maintaining wells and ensuring that water meets safe drinking water quality standards. More than half (56%) of domestic wells are located in groundwater basins* experiencing groundwater decline, and almost half of these are located in areas where groundwater decline is more than 1 foot per year.[3]

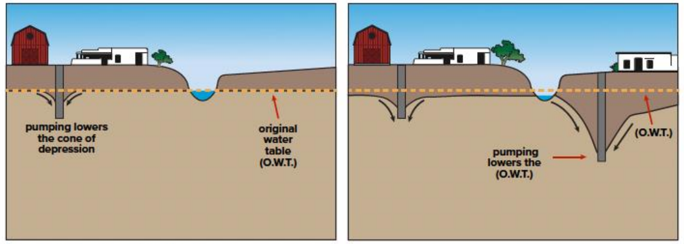


Figure 1. The graphic shows the impact of a new well on the water table, a nearby stream, and the existing well. As a new water user starts pumping a large volume of water from their well, the water table falls. Eventually, the stream and initial well may run dry.

Wells pump groundwater from aquifers, underground layers of rock and sediments saturated with water. Cracks and pores in the aquifer allow water to move, usually by gravity, but also by other forces. When a pump begins pulling water out of the ground, groundwater flows through the aquifer towards the pump, much like a liquid in an ice filled glass can be sucked toward a straw. A pumping well creates a cone of depression; the shape and extent of this cone depend on the rate of pumping and aquifer characteristics. Closely spaced wells can have overlapping cones of depression (see Figure 1). In this way, pumping impacts the groundwater level near the well, and multiple wells can impact groundwater levels over a broad area.

If the groundwater levels are near the bottom of the well, the pump may suck up air and grit, which may damage the pump and associated plumbing. Water conservation by pumpers in the same area can preserve water levels for everyone and mitigate changes to water quality.[4] Deepening a well, replacing well-related equipment, or installing a water treatment system is much more expensive than employing conservation strategies.

Where are Arizona Domestic Wells?

Domestic groundwater wells are located throughout Arizona. The Arizona Department of Water Resources (ADWR) regulates groundwater use within Active Management Areas (AMAs) (Figure 2). In AMAs, most domestic wells—those pumping less than or equal to 35 gallons per minute—are classified as exempt wells, with no reporting requirements and their water use is minimally regulated by ADWR; however, these wells may not be used to irrigate gardens larger than two acres. Outside of AMAs,

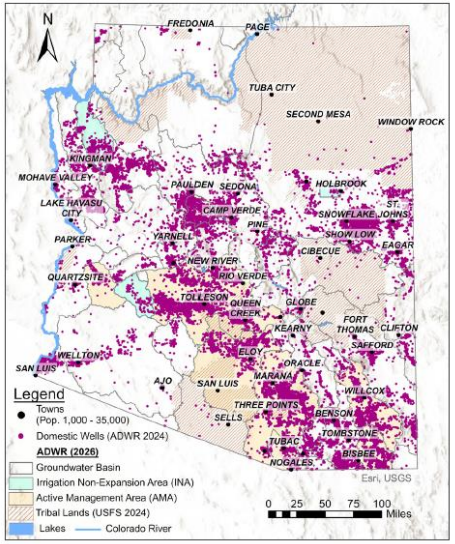


Figure 2. Map of domestic wells in Arizona as recorded by ADWR Wells 55 Registry[2] and AMAs and INAs.[5] Note that the ADWR database does not include many wells located on Tribal land due to the sovereign status of those lands.

*Highlighted words are defined in the online resources section for this factsheet.

1

Water Conservation Strategies

- Outdoor Water Conservation
- Indoor Water Conservation
- Conservation associated with at-home water treatment
- Alternative water supply augmentation strategies

Indoor Water Conservation Strategies

Conserving water indoors can also be achieved by installing WaterSense technologies and modifying behaviors. Compared to traditional appliances and faucets, WaterSense labeled appliances and faucets can reduce water use by 50%. A recent study found that households with high-efficiency appliances used about 18.5% less water than older appliances households.[6] **The most cost-efficient water savings can come from replacing toilets and shower heads!**

Find other water saving strategies at https://wateruseitwisely.com/

Behaviors	Technologies
• Turn off the faucet when brushing your teeth. • Take shorter showers. Aim for 5 minutes or less. • Check for leaks. Leaks are common in toilet flappers, showers, hose bibs, and faucets. • Wash dishes in stoppered sink or bowl. Washing the dishes with the tap running can use up to 20 gallons of water, while filling the sink or a bowl and turning the tap off saves 10 of those gallons. • Skip rinsing dishes before loading the dishwasher and save up to 10 gallons per load. • Thaw food in the refrigerator overnight rather than running under tap water. • Add food wastes to your compost pile instead of using the garbage disposal.	• If your toilet was purchased before 1992, replace it with a WaterSense model **Annual Water Savings: 5,750 GPCY** Estimated Cost: $110 • Replace old clothes washer with an ENERGY STAR® certified model **Annual Water Savings: 3,950 GPCY** Estimated Cost: $520 • Replace dish washer with an ENERGY STAR® certified model **Annual Water Savings: 350 GPCY** Estimated Cost: $500 • Replace old showerhead with a WaterSense **Annual Water Savings: 2,450 GPCY** Estimated Cost: $40 • Divert a point-of-use RO system concentrate stream to a cistern rather than sewer. (See next section.) **Annual Water Savings: 4,400 GPCY** Estimated Cost: $1,000

Leak Prevention Strategies

According to the U.S. EPA, the average household loses more than 10,000 gallons of water each year through leaks, which is the same amount of water needed to wash 280 loads of laundry, take 600 showers, or meet the average family's water needs for a month. Water leaks commonly occur in toilet flappers or outdoor spigots, but can occur in other parts of the plumbing system. Using water monitoring technologies or being diligent about checking for leaks can save water.

Behaviors	Technologies
• Be alert for persistent pump cycling, which may indicate a leak in the system. • Check the wellhead for vegetation or pooling water. These may be signs of underground leaks or a compromised seal. • Check plumbing (from wellhead to tap) for unexplained wet spots in the yard along the route from the well to the home. • Check landscaping along potable water line, septic, or sewer line for additional plant growth that can indicate a leak.	• Install a smart water meter to track water use and provide leak detection. **Annual Water Savings: 3,300 GPCY** Estimated Cost: $270 **Many insurance companies offer incentives for installing smart water leak detectors such as a discount on your policy and/or free or discounted detectors.** *NOTE: Any damage to well components should be addressed by a qualified well professional. Leak detection may be difficult depending on the geologic zone and soil profiles.*

Alternative Water Supply Augmentation Strategies

In addition to reducing water consumption, it is also possible to capture rainwater or reuse gray water on your property. Captured rainwater or gray water can easily be used to meet outdoor water use. With proper treatment, harvested rainwater can also be used to meet indoor water use. Check for any local plumbing code and permitting requirements.

Rainwater Harvesting	Gray Water
Annual precipitation throughout Arizona ranges from 3 inches in southwest Yuma to 40 inches in the White Mountains. Rainwater harvesting captures runoff from roofs. Rainwater can be stored in storage tanks (active) to be put to beneficial use throughout the year, or it can be directed to basins (passive) to infiltrate into the landscape. Depending on the size of the roof and annual rainfall, the amount of rainwater that can be harvested ranges from a few thousand to tens of thousands of gallons per year. Harvested rainwater can easily be used for irrigation to offset the freshwater demand. **Annual Water Savings: 3,700-21,200 GPCY** Estimated Cost: $2,000-$4,500	Gray water, the wastewater generated from domestic processes such as laundry and bathing **(not from kitchen sinks or toilets)**, comprises 50-80% of residential wastewater. With minor plumbing adjustments, this water can be used around the property, including for flushing toilets and irrigating landscape. **Annual Water Savings: 3,300-5,750 GPCY** Estimated Cost: $600-$1,000 *Note: The cost and capacity of rainwater and gray water harvesting varies greatly depending on the size of the system. There are many health and water quality concerns to address before using gray water. Gray water can harm plants due to soil salinity build up; use low sodium soaps and consult on how to mitigate with soil amendment when irrigating with gray water.*

Conservation Strategies for Small-Scale Farmers

June 2026

THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION
WATER RESOURCES RESEARCH CENTER
wrrc.arizona.edu/conserve

Background

This fact sheet provides answers to frequently asked questions by small-scale and beginning farmers related to water conservation practices and management of farms on less than 50 acres.

Arizona is home to more than 12,700 farms smaller than 50 acres, representing approximately 76% of all farms in the state.[1] Agriculture in Arizona is increasingly characterized by smaller, newer, and more urban farming operations, reflecting broader changes in land use and agricultural markets.[2] This includes larger growth for female and indigenous producers. These farms are characterized by their environmentally friendly practices, as they generally rely less on large machinery and chemical inputs compared to industrial farms.[3] In the United States, over 90% of farms fall under the classification of small, generating less than $250,000 in gross annual income. Many of these operations are owned by first-generation, beginning, or part-time farmers who produce vegetables, specialty crops, livestock, and local food products. Small-scale operations make up 75% of agriculture in multiple counties. Figure 1 shows areas of farming and ranching. Practical water conservation strategies can help small-scale farms improve efficiency, reduce costs, and build resilience while supporting long-term agricultural sustainability.

Why Water Conservation Matters on Small Farms

Water is one of the most valuable resources on Arizona farms. Agriculture accounts for approximately 72–75% of Arizona's water use, and nearly all crop production in the state depends on irrigation.[4,5] As drought, groundwater declines, and Colorado River shortages continue, small-scale farmers face increasing pressure to make every drop count. Many of the systemic hurdles facing industrial agricultural producers also impact small-scale operations. These challenges fall into three general categories:

Arizona Farming and Grazing Lands

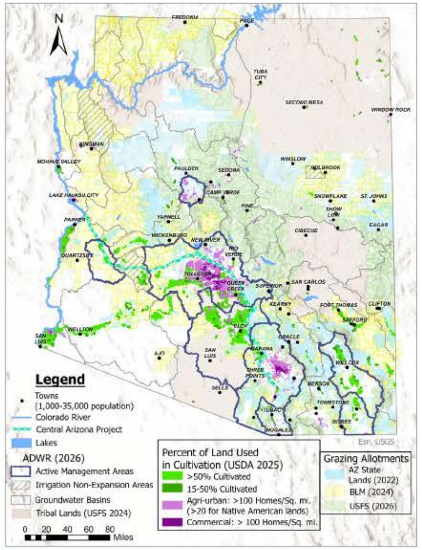


Figure 1: Small-scale farming, percent agriculture,[10] state[11] and federal grazing allotments,[12,13] and AMAs and INAs.[14]

1. Climate

Traditional weather patterns have shifted to periods of high-intensity rainfall followed by rapid-onset dryness. These extreme fluctuations result in changing soil conditions, cycling rapidly between oversaturated and dry.[6] Practically, the increased average temperature and a shift in precipitation patterns means more stress on plants and less forage availability for animals.

2. Economic Barriers

Producers face difficult trade-offs between long-term water conservation investments and shorter-term profitability.[7] Farmers leasing land must weigh the investment in high installation costs against the economic uncertainty of future crop yields or water savings. Because the land is not owned, it is difficult to recoup benefits from investments.[8] According to USDA estimates from 2022, Arizona has approximately 1,227,159 acres of leased farmland.

3. Water Supply Uncertainty

The reliability of groundwater or surface water irrigation supplies may represent a significant challenge to producers in some areas. As the operating rules for the Colorado River system undergo revision, Lower Basin states, including Arizona, face significant changes to water availability. This creates a challenging planning environment for producers: many fear that any water saved through efficient technology will simply be permanently diverted to non-agricultural sectors. Furthermore, there is a lingering concern that reduced water usage will inevitably lead to lower yields and diminished revenue.[9]

Strategies for Conservation

Irrigation Efficiency: Making Every Drop Count

Simple changes to irrigation practices are a good way small farms can conserve water, reduce costs, and improve crop health and yields. Many types of irrigation have their own benefits and costs.

Surface irrigation is the most common irrigation used in the arid west. It uses trenches to apply water to planted rows or flood level fields. It requires almost no equipment or increase in energy costs. When applied correctly, efficient systems can lead to conservation gains.[15] Improvements for existing surface irrigation include:

- **Furrow shaping** modifies the shape and length of the channels between rows to optimize water flow and infiltration. Properly designed furrows can enhance water use efficiency, especially in unhealthy soils.
- **Lining irrigation ditches** applies concrete, plastic, or prefabricated plates to the interior of canals to prevent water loss. Research indicates lining and piping infrastructure can reduce losses due to evaporation or leaks.[16]
- **High flow gates** allow for the rapid and controlled distribution of water within a plot. These gates allow precision control of water distribution (when and where) to improve overall productivity, especially in periods of heavy or unpredictable rain.[17]

 **Highlighted* words are defined in the online resources section for this factsheet.*

Sprinkler irrigation is a controlled application of water through a network of pumps, pipes, and spray nozzles.[18] These systems and micro-sprinklers can reduce water consumption compared to flood irrigation.[19] Its advantage is that water is distributed equally, generating efficiency improvements of up to 80%. It can be a useful substitute for furrow irrigation if applied to the care of juvenile plants that need to be watered more often than established plants as a grow-in period. Once mature and established, they can be watered less often as they adapt.[20]

Drip irrigation runs water through holed pipes that are buried or lie on the ground next to crops, dripping close to roots and stems (see Table below).

Benefits of Drip Irrigation	Challenges to Consider
• Uses 30–60% less water than conventional. • Delivers water directly to plant roots. • Reduces evaporation, runoff, and wind drift. • Reduces weed growth between crop rows. • Reduces plant diseases by keeping leaves dry. • Can improve crop quality and yields. • Fertigation compatible (fertilizer in water).	• Higher upfront installation costs. • Emitters may clog if water is not filtered properly. • Requires periodic maintenance and monitoring. • Dripline damage (e.g., rodents, wildlife, or equipment). • Not practical for some forage crops or large grazing operations. • Match system design to crop type and field conditions. • Fertigation systems require additional management and maintenance.

Water Saving Irrigation System Improvements

Timing Shifting irrigation to cooler hours (late evening or early morning) significantly reduces water loss caused by evaporation and wind. Research indicates that timing adjustments, combined with modern delivery systems, are correlated with irrigation efficacy.[21]

Crop conversion involves replacing high-water use crops with more drought or salt-tolerant crops better suited to heat and arid conditions. In the Southwest, this strategy is increasingly viewed as a primary strategy for long-term water sustainability.[22] For example, traditional and indigenous crops, such as tepary beans or heirloom maize, thrive in extreme heat and low-water-use environments.[23]

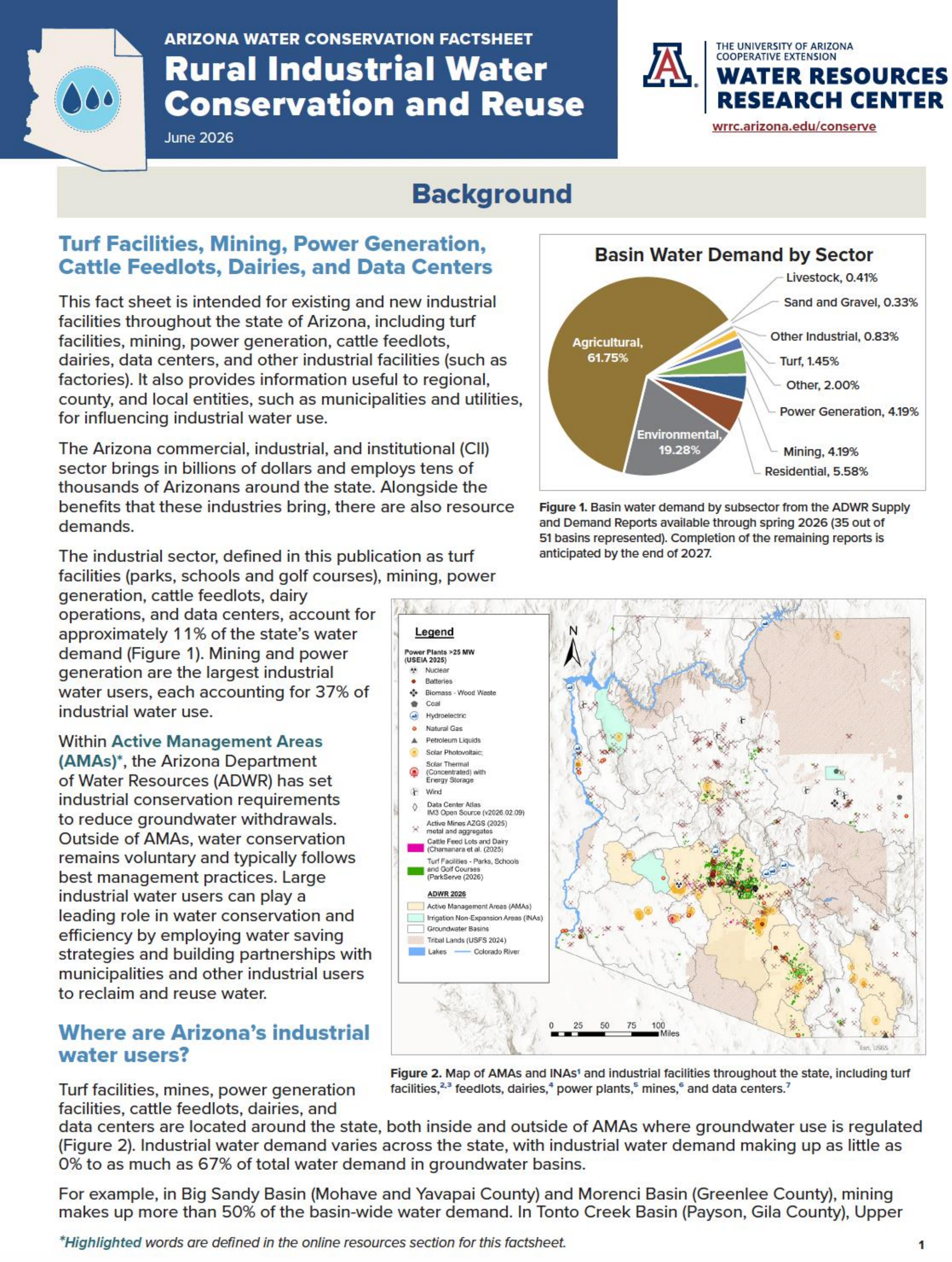
Quick Water Conservation Checklist

- ✓ Check irrigation lines and emitters monthly
- ✓ Irrigate during cooler times of day
- ✓ Monitor soil moisture before watering
- ✓ Fix leaks immediately
- ✓ Consider drip irrigation for high-value crops
- ✓ Apply mulch to reduce soil moisture loss

Soil monitoring uses sensors to measure real-time volumetric water content, allowing farmers to irrigate only when necessary. This data-driven approach alerts farmers to damaging soil conditions, salt buildup, or nutrient leaching, while generating water savings through modification to the timing and quantity of irrigation, leading to water savings.[24]

Cover crops are non-commercial plants grown during fallow periods to protect the soil surface from erosion. By increasing soil porosity and water infiltration rates, cover crops make more moisture available for primary crops.[25]

Water Saving Irrigation Tips	Irrigation Best Practices
Inspect Your System Regularly	• Check for leaks, broken emitters, and clogged nozzles. • Repair damaged hoses and lines promptly. • Monitor water pressure for even distribution.
Irrigate at the Right Time	• Water early morning or evening to reduce evaporation. • Avoid windy conditions when water can be lost to drift. • Adjust seasonally based on crop needs and weather conditions.
Water Only What Needs Water	• Use drip, micro-sprinklers, or targeted watering methods when possible. • Avoid overspraying non-crop areas. • Group crops with similar water requirements.
Monitor Soil Moisture	• Check soil moisture before irrigating. • Consider rainfall, temperature, and soil conditions. • Use soil moisture sensors to guide decisions.



ARIZONA WATER CONSERVATION FACTSHEET

Rural Industrial Water Conservation and Reuse

June 2026

THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION
WATER RESOURCES RESEARCH CENTER
wrrc.arizona.edu/conserve

Background

Turf Facilities, Mining, Power Generation, Cattle Feedlots, Dairies, and Data Centers

This fact sheet is intended for existing and new industrial facilities throughout the state of Arizona, including turf facilities, mining, power generation, cattle feedlots, dairies, data centers, and other industrial facilities (such as factories). It also provides information useful to regional, county, and local entities, such as municipalities and utilities, for influencing industrial water use.

The Arizona commercial, industrial, and institutional (CII) sector brings in billions of dollars and employs tens of thousands of Arizonans around the state. Alongside the benefits that these industries bring, there are also resource demands.

The industrial sector, defined in this publication as turf facilities (parks, schools and golf courses), mining, power generation, cattle feedlots, dairy operations, and data centers, account for approximately 11% of the state's water demand (Figure 1). Mining and power generation are the largest industrial water users, each accounting for 37% of industrial water use.

Within **Active Management Areas (AMAs)***, the Arizona Department of Water Resources (ADWR) has set industrial conservation requirements to reduce groundwater withdrawals. Outside of AMAs, water conservation remains voluntary and typically follows best management practices. Large industrial water users can play a leading role in water conservation and efficiency by employing water saving strategies and building partnerships with municipalities and other industrial users to reclaim and reuse water.

Where are Arizona's industrial water users?

Turf facilities, mines, power generation facilities, cattle feedlots, dairies, and data centers are located around the state, both inside and outside of AMAs where groundwater use is regulated (Figure 2). Industrial water demand varies across the state, with industrial water demand making up as little as 0% to as much as 67% of total water demand in groundwater basins.

For example, in Big Sandy Basin (Mohave and Yavapai County) and Morenci Basin (Greenlee County), mining makes up more than 50% of the basin-wide water demand. In Tonto Creek Basin (Payson, Gila County), Upper

Figure 1. Basin water demand by subsector from the ADWR Supply and Demand Reports available through spring 2026 (35 out of 51 basins represented). Completion of the remaining reports is anticipated by the end of 2027.

Figure 2. Map of AMAs and INAs[1] and industrial facilities throughout the state, including turf facilities,[2,3] feedlots, dairies,[4] power plants,[5] mines,[6] and data centers.[7]

*Highlighted words are defined in the online resources section for this factsheet.

1

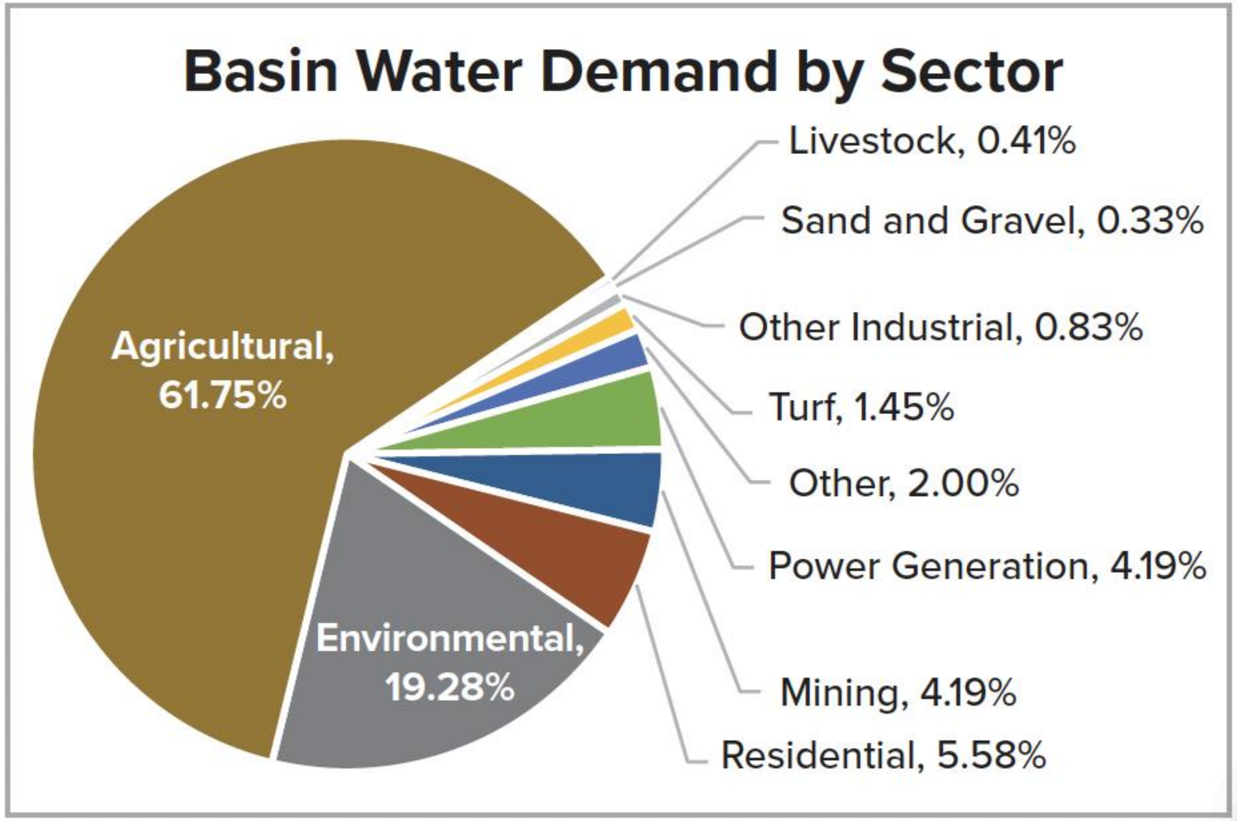


Figure 1. Basin water demand by subsector from the ADWR Supply and Demand Reports available through spring 2026 (35 out of 51 basins represented). Completion of the remaining reports is anticipated by the end of 2027.

Where to Look for Water Savings

Identifying where and how water is used by industrial water users can indicate where water may be saved. Lifetime water use can include both direct water use (i.e., the water that is used on-site for day-to-day operations) and indirect water use (i.e., the water that is used to manufacture materials, obtain fuel, or provide energy). Generally, direct water use has an impact on local water supplies while the impacts of indirect water use are felt elsewhere. Below is an overview of the major direct water uses by industry.

- **Turf Facilities:** Water is used for irrigation of turf and maintaining water features. The average golf course water use within AMAs was 4.1 acre-feet (AF) per acre in 2023.[15]
- **Mining:** Water is used throughout the mining process, including during ore processing, tailings management, dust suppression, and to cool equipment. Historically, producing copper averaged 5.5-62.3 gallons per pound.[16]
- **Power Generation:** Water use during power generation varies depending on the type of power generation (Figure 3). For example, one kilowatt-hour (kWh) of thermoelectricity consumes 0-2.1 liters (L) depending on the cooling method. Cooling towers that utilize steam turbine cooling average 2.1 L/kWh, whereas dry cooling only uses trace amounts of water directly.[10]
- **Cattle Feedlots and Dairy:** Water is used for consumption, dust suppression, and maintaining the facilities. The average annual feedlot and dairy water use per acre and water use per animal within Prescott and Phoenix AMAs in 2023 were 1.4 AF/acre and 0.03 AF/animal, with variations due to age and lactating status of the animal.[15]
- **Data Centers:** Water is primarily used in data centers for cooling. One report that looked at 30 data centers located in the U.S. found that water use by data centers ranged from 0.5-59.2 AF/acre.[15] Facilities in Arizona averaged 6.3 AF/acre.[15] It has been estimated that each 100-word search on large language models uses about half a liter or 0.13 gallons of water.[11]

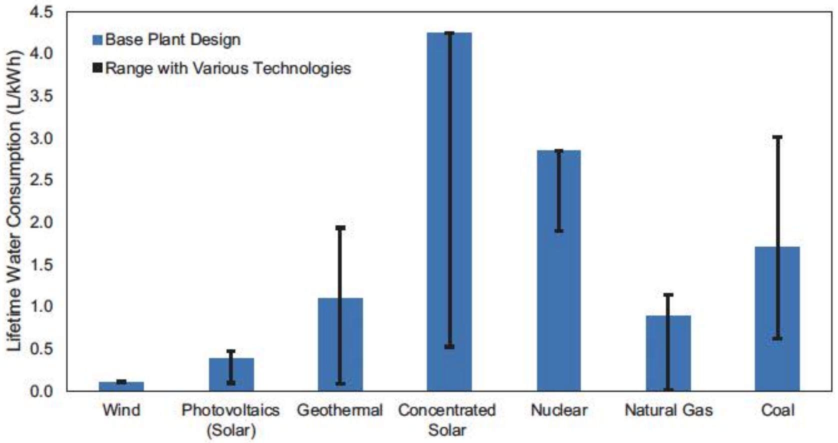


Figure 3. Lifetime water consumption of energy production including both the direct water use during operation and the indirect water use for materials and fuel.[12]

The tradeoff between water and energy

Some "water saving technologies", such as dry cooling for data centers, have the tradeoff of higher energy consumption. Total water use by an industry adopting these technologies may not be reduced if power comes from high-water-use generating facilities. Industry use of low-water-use power can reduce total water use; however, industries typically use power from the local grid and seldom have a choice of power generation sources.

Water Saving Practices

Reducing water use is industry specific; however, some strategies may overlap. Performing a water audit can help pinpoint areas for improvement. The American Water Works Association (AWWA) has free water audit software available to help complete a water audit. Technical assistance is available statewide from multiple sources (see Getting Started section).

You can start by integrating water and energy efficient practices into operations and management:

- check regularly for broken water meters or broken water valves
- check for and eliminate leaks where possible
- reduce over-pumping
- avoid single-pass cooling or heating (see Resources link)
- flush nozzles and heads for cleaning
- use low-flow plumbing fixtures
- work on general system performance

Next, move into other water saving measures, such as:

- installing more advanced water efficient fixtures
- sub-metering areas with suspected leaks or malfunctioning equipment
- checking for electrical faults (they may lead to a system failure that increases water consumption)
- increasing cooling tower cycling with minimal chemical additives
- finding ways to re-use water from cooling systems

Water conservation requirements from AMAs can provide good initial goals and strategies for reducing water use.[13]

- **Sector Specific Conservation Requirements within AMAs:**
  - **Turf Facilities (> 10 acres):** Install low water use and drought tolerant plants where feasible and efficient irrigation systems. Minimize high-water use turf. Different categories of turf have specified maximum irrigation volumes. Maximum irrigation volume is calculated based on total acreage, land use category, and the AMA. Generally, allowable annual turf irrigation rates range between 3.37 to 6.034 acre-feet (AF) per acre.
  - **Metal Mining Facilities** (> 500 AF/year): Minimize the amount of water used in tailings transport (48-50% or greater solids content in the tailings). Maximize tailings water reuse, minimize evaporation, and minimize water use for dust control.
  - **Large-Scale Power Plants** (> 25 MW): Achieve a specified number of cycles of concentration. Pre-1985 steam facilities must achieve 7 or more cycles. Post-1984 steam facilities must achieve 15 or more cycles. For combustion turbine facilities, the required number of cycles of concentration is based on the quality of blowdown water.
  - **Large-Scale Cooling Facilitie**s (> 1,000 tons): Cycle cooling water until it reaches a specified concentration of silica (120 mg/L) or of total hardness (1,200 mg/L) before replacing with fresh water.
  - **New Large Industrial Users** (> 100 AF/year): New large industrial users must submit to ADWR a plan to improve the facility's water use efficiency.

Reusing Water via Partnerships

One of the most exciting frontiers of industrial water conservation is water reuse via partnerships either with other industries or municipal water utilities. Just as on-site water reuse and reclamation allow the same water to be used multiple times, water reuse via partnerships allows water to be used multiple times by different entities.

3

For some uses, reclaimed water that has received sufficient treatment can be better than groundwater. There are many examples of successful partnerships throughout Arizona.

Water and energy saving technologies for data centers include the use of liquid immersion cooling, renewable energies to off-set peak loading, and heat tolerant chips.

- **Golf Courses and Municipal Effluent:** Many examples of private-public partnerships exist for turf irrigation using recycled water from cities, such as Phoenix, Tucson, and Prescott. Within AMAs, the use of effluent by turf facilities is incentivized by an effluent use adjustment. Each acre-foot of effluent used is counted as 0.6 or 0.7 AF depending on the AMA.
- **Copper Mining and Local Farming:** Resolution Copper, since 2009, has provided 25,000 AF of treated water from dewatering operations to local farmers in the New Magma Irrigation and Drainage District (NMID) for irrigation purposes.[15] Florence Copper provides surplus process water to a local farm. Over time the partnership is expected to save up to 1,466 AF annually.[16]
- **Palo Verde Nuclear Generating Station and Phoenix Municipalities:** The nuclear generating station located west of Phoenix reclaims and uses approximately 75,000 AF per year of effluent from local municipalities for cooling needs.
- **Copper Mining and Power Generation/Data Centers:** Another potential partnership would be between power generation or data centers and copper mining industries. Research has shown that hot water leads to higher rates of copper leaching. This may mean that a low-grade heat producer, such as a data center or power plant, may be able to send hot water to a mine for more efficient copper extraction.

ARIZONA WATER CONSERVATION FACTSHEET

Riparian & Stream Water Conservation Strategies

June 2026

THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION
WATER RESOURCES RESEARCH CENTER
wrrc.arizona.edu/conserve

Background

This fact sheet provides strategies and best practices for landowners and residents to sustain and restore riparian and stream health on their land and in their communities.

In the arid Southwest, **riparian*** areas serve as lifelines. Although they may occupy a small fraction of the landscape, these "ribbons of life" support most of the region's biodiversity.[1] However, they are increasingly stressed by drought, changes in climate, and growing water demands. Managing watersheds and **aquifers** as integrated systems takes advantage of natural processes to ensure that water sources remain resilient for the future. Approximately 94% of the streams in Arizona are **intermittent** or **ephemeral** but only a few **perennial streams** remain.[2] However, intermittent and ephemeral streams perform many of the same hydrologic functions as perennial streams: moving water, sediment, nutrients, and debris through the stream network and providing connectivity within the watershed.[3]

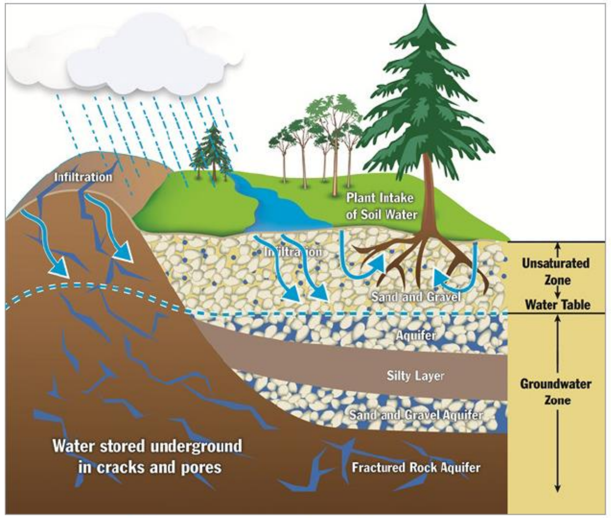


Figure 1: Diagram of interplay between surface and ground water. Source: https://www.gov.nl.ca/eccc/waterres/groundwater/.

When water from rain or snow soaks into the ground, it becomes **groundwater**. If the water table is high enough, groundwater can flow into surface-level rivers and streams, either on a permanent or seasonal basis. One of the common metrics for measuring the health of a stream is **baseflow**, which is the contribution of groundwater to a stream. The groundwater contribution to streamflow is particularly important during the dry and summer months because there is less rain and snowmelt. In periods of low rainfall or excessive ground water pumping, the water table can fall and cease to contribute to streamflow. This can happen even if the pumping occurs far away from the stream. This can result in streams that no longer have running surface water, but conservation strategies that slow runoff and encourage infiltration can raise water tables and increase streamflow.[4] Figure 1 shows how stream water seepage contributes to groundwater below the water table.

Risks for Riparian Areas

Estimates suggest that groundwater levels are falling in more than half of Arizona's 51 groundwater basins due to groundwater pumping that exceeds recharge.[5] A hotter, drier climate along with increased groundwater pumping have meant that more water is taken out of aquifers than can be replaced through natural processes. The impacts on the health of rivers, streams, and riparian areas are clear. As instream flows decrease, the negative impacts on riparian areas increase.[5] Nationally, a large percentage of riparian zones are considered "in degraded and non-functional conditions that require restoration," making them among the most drastically altered ecosystems in the nation.[6]

Conservation strategies that slow runoff and encourage infiltration can raise water tables and increase streamflow.

**Highlighted words are defined in the online resources section for this factsheet.*

Where are Riparian and Stream Areas in Arizona?

Some of the best-known riparian areas in Arizona are the Verde River, the San Pedro Riparian National Conservation Area, Agua Fria National Monument, and Fossil Creek. In the past, riparian habitats represented about 1% of the landscape in the West. Current estimates suggest that up to 95% of this habitat has been altered or destroyed due to such practices as river channelization, livestock grazing, agricultural land clearing, water impoundments, excessive groundwater pumping near streams, and urbanization.[7] Although riparian habitat and perennial streams only represent a small percentage of habitats, at least 274,139 miles of ephemeral and intermittent streams occur in every corner of the state.[11] Figure 2 shows the 9,236 stream miles in the ADEQ's Surface Water Protection Program (SWPP), representing 3 percent of the total.[9] Stream flow regimes in SWPP are 32% perennial, 18% intermittent, and 2% ephemeral, with the rest undetermined. Additionally, 21% of SWPP streams are considered critical habitat areas for 12 riparian and aquatic endangered species (see References for species list).[12,13]

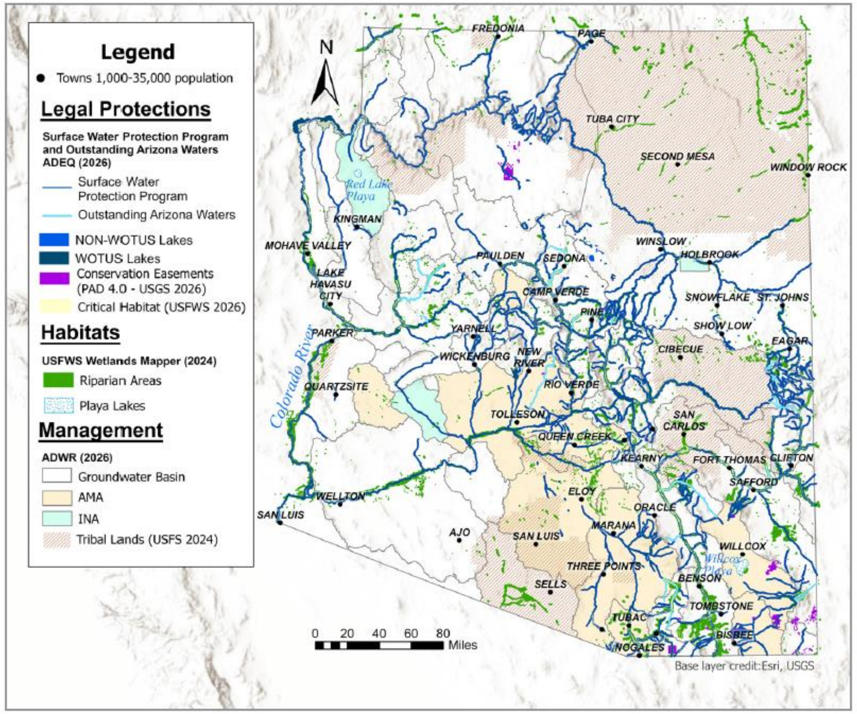


Figure 2: Arizona map of riparian vegetation,[8] Surface Water Protection Program[9] streams and Outstanding Arizona Waters, land and groundwater management,[10] and legal protections.

Why Riparian and Stream Conservation Matters

Enhanced Wildfire Recovery

Wildfires have impacts that persist long after the fire is suppressed. Rainfall runoff over catastrophic fire-damaged landscapes carries debris and sediments into streams, and contaminants can make their way into groundwater. Healthy riparian areas have been shown to mitigate wildfire severity and aid water quality recovery in post fire periods,[14] and benefits can last five to eight years *following* a fire.[15] Data suggests that areas with higher forest coverage and instream flows are associated with quicker ecosystem recovery times. Conversely, poorly maintained riparian areas, characterized by higher water temperature, increased sediment flows in flooding, and high algae levels, show less resilience following severe fires.[16]

Flood Control

Restoration in riparian and upland areas can help develop natural buffers for absorbing and redirecting rising waters and provide space for seasonal flooding. There are two kinds of buffers: riparian forest buffers and upland forest buffers. Buffers are combinations of plants and landforms intended to mitigate the impact of land use on the stream.[18] By slowing the velocity of floodwater, healthy riparian zones reduce downstream erosion and protect infrastructure from flood activity.[19]

Improved Water Quality

Riparian vegetation and soil act as a natural filtration system, trapping sediment and absorbing excess nutrients or pollutants before they reach the stream, which can ensure cleaner water for downstream users.[17]

2

Recreational Opportunities

Riparian zones offer prime locations for birdwatching, hiking, and fishing. Riparian areas are associated with increased vegetative cover and cooler temperatures. Their cooler microclimates and unique aesthetic make them highly valued spaces for eco-tourism and community well-being.[20]

Biodiversity

Though they occupy a small fraction of Arizona's land, riparian areas support the majority of its wildlife. They serve as essential migratory "highways" and provide habitat, food, and water for hundreds of species.[21] More than 360 species in the region are dependent on river habitats and are imperiled due to summer flow depletions.[22]

Strategies to Support Riparian and Stream Ecosystems

- **Instream Conservation Flow Rights**
- **Donating Water Rights for Conservation**
- **Collaborative Watershed Partnerships**

Natural Restoration Strategies

- **Induced meandering**
- **Low Tech Process-Based Restoration (LTPBR)**
- **Removal of Invasive Plant Species**
- **Beaver Restoration**

Every Factsheet has a Getting Started section

Getting Started

If you are interested in conserving water for riparian and stream ecosystems on your property or your favorite location, there are many resources available to help. Look for a collaborative watershed partnership in your area and check out the resources provided with this factsheet. **Please use the QR code below or visit wrrc.arizona.edu/conserve to find definitions, resources, and references (corresponding to numbers in the text) used for the creation of this factsheet.**

Additional Definitions, Resources, and References

wrrc.arizona.edu/conserve

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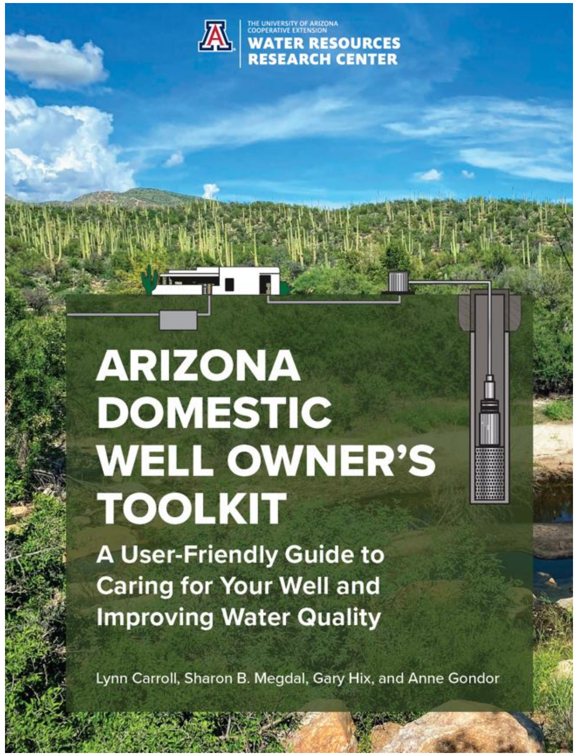
WATER INFRASTRUCTURE FINANCE AUTHORITY OF ARIZONA

Some notes, definitions, and resources are still being refined.

4. Wrap up

- We hope that the factsheets, along with the online information, will be useful to many in Arizona and beyond.
- We seek your assistance in helping us spread the word of their availability.
  - Mention in your newsletters or other communications
  - Think of us as information sharing opportunities arise
- In addition to free downloads, we have printed up a limited number of each factsheet, some of which will be distributed to County Extension offices.
- Access our complementary materials such as our county-based water factsheets and our new *Arizona Domestic Well Owner's Toolkit*.
- Keep up with the WRRC's programs, annual conference, publications, and webinars through subscribing to the Weekly/Summer Wave. (See QR code and link on last slide.)



https://wrrc.arizona.edu/publication/arizona-domestic-well-owners-toolkit

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Thank you!
6. Questions and Discussion

https://wrrc.arizona.edu/conserve

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